

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



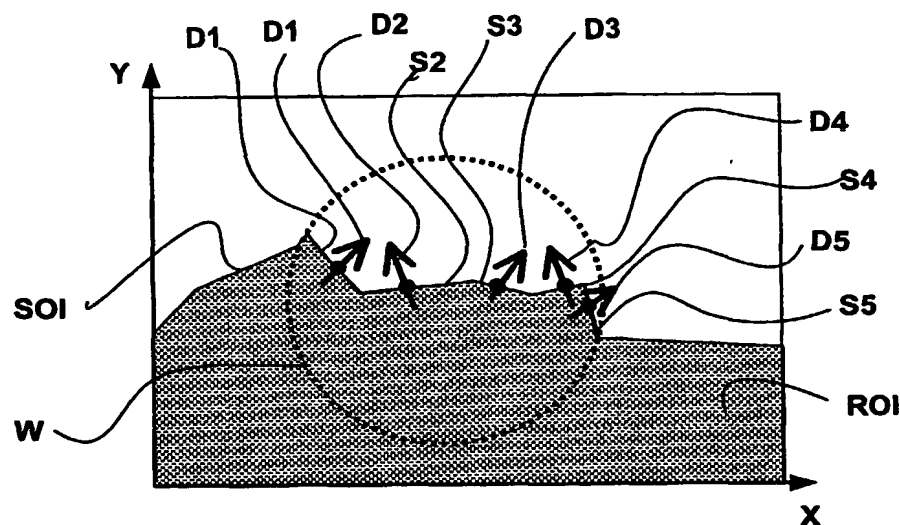
(43) International Publication Date
18 March 2004 (18.03.2004)

PCT

(10) International Publication Number
WO 2004/023396 A2

- (51) International Patent Classification⁷: **G06T 5/00, 9/20**
- (21) International Application Number:
PCT/IB2003/003775
- (22) International Filing Date: 22 August 2003 (22.08.2003)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
02292175.3 4 September 2002 (04.09.2002) EP
- (71) Applicant (for all designated States except US): **KONINKLIJKE PHILIPS ELECTRONICS N.V.** [NL/NL]; Groenewoudseweg 1, NL-5621 BA Eindhoven (NL).
- (72) Inventors; and
(75) Inventors/Applicants (for US only): **MAKRAM-EBEID, Shérif** [FR/FR]; 156 Boulevard Haussmann, F-75008 Paris (FR). **ROUET, Jean-Michel** [FR/FR]; 156 Boulevard Haussmann, F-75008 Paris (FR). **FRADKIN, Maxim** [FR/FR]; 156 Boulevard Haussmann, F-75008 Paris (FR).
- (74) Agent: **LOTTIN, Claudine**; Société Civile SPID, 156 Boulevard Haussmann, F-75008 Paris (FR).
- (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).
- Published:**
— without international search report and to be republished upon receipt of that report
- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: CHARACTERIZING SURFACES IN MEDICAL IMAGING



(57) Abstract: The invention relates to a medical image processing system comprising means for identifying a boundary of the object, and reference points of said object boundary within an observation window; and for decomposing said object boundary into boundary unit elements, centred at the reference points, means for coding each reference point including spatial information and intensity information relating to said reference point and the corresponding unit element; computing transform coefficients from said coding data. A finite number of said coefficients is used for representing said object boundary by a polynomial transform function. This system has means for comparing, matching, correlating, smoothing corresponding boundary portions of the object in different images, only by performing operations on the transform coefficients. These operations yield rotation, translation, scale change transform coefficients.